



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,212	07/25/2001	Brian Wells	130109.429	6854
500	7590	10/07/2003		
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 6300 SEATTLE, WA 98104-7092				
			EXAMINER MERCADO, JULIAN A	
			ART UNIT 1745	PAPER NUMBER

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,212

Applicant(s)

WELLS ET AL.

Examiner

Julian A. Mercado

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1,4-13,19-23 and 32 is/are rejected.
- 7) ☐ Claim(s) 2,3,14-18 and 24-31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5-7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- a. Figures 5, 6 and 7 do not show the “directional arrows” of the cooling air stream as mentioned in page 15 at line 20-25.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Meltser et al. (U.S. Pat. 5,763,113)

Regarding independent claim 20, Meltser et al. teaches a PEM fuel cell stack [2] having a fluid flow path for directing fluid such as air or oxygen to and from the stack. (col. 3 line 65-67) A fuel regulating system regulates the fuel supply such as by “throttling back on the hydrogen pressure”, *inter alia*. (col. 8 line 25) A hydrogen sensor [32] is in the fluid flow path and located downstream. (col. 4 line 49-52) Giving the term “vicinity” its broadest reasonable interpretation,

the sensor is considered to be in the "vicinity" of the fuel regulating system insofar as both the sensor and the fuel regulating system (comprised of valves, switches etc., *ib*) are integrated components of the unitary fuel cell system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-8, 13, 19, 22, 23 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meltser et al. as applied to claims 20 and 21 above.

The teachings of Meltser et al. are discussed above and apply to independent claims 1, 13 and 32 (and dependent claims where noted) for the reasons discussed above and for the additional reasons to follow.

Meltser et al. further teaches a housing portion [2] of the power generating system, which can be appreciated to form a portion of the coolant flow path, e.g. arrow [14] of flow channel is directionally contained along this portion of the housing. (Figure 1, applies to dependent claim 23) Fuel supply valves, which are part of the fuel regulating system, are specifically disclosed to be opened, i.e. for pressure relief, or closed, i.e. for cessation of fuel supply, during regulation of the fuel at times of detected high hydrogen concentration. (col. 8 line 12-19, applies to dependent claim 5) Such valves and switches are considered to read on the instant fuel supply connectors. (applies to dependent claim 4) The term "main fuel valve" in dependent claim 6 and 28 is not

Art Unit: 1745

28 is not found to be mutually exclusive from the earlier recited “fuel supply valve” and “pressure relief valve”, thus, one of a plurality of fuel supply valves or pressure relief valve are considered to read on the claimed main valve. The system controller [40] is considered to read on the claimed hydrogen pressure regulator based on its disclosed function of regulating hydrogen flow through the fuel cell. (col. 5 line 48 et seq., applies to dependent claim 7)

Independent claims 1 and 13 are notably of more definitive scope than independent claim 20, as claims 1 and 13 recite a coolant flow path in lieu of claim 20’s fluid flow path. In Meltser et al., the hydrogen sensor [32] senses the portion of the fuel exhaust stream, i.e. the amount of hydrogen reactant gas that crosses over in the fuel cell into the cathode manifold; in Figure 1, eight conduits are shown. (applies to dependent claim 19) While Meltser et al. does not explicitly teach the fluid flow path as a coolant flow path, as the fluid is air it would naturally flow to function as a coolant, since the fluid air from the cathode is exhausted out of the fuel cell as a hot gas. (also applies to dependent claim 22) Notwithstanding, the fluid air in Meltser specifically reads on instant dependent claim 8, which recites that “the coolant is air”. While it is noted that applicant’s disclosure states that the “fluid flow path is suitably a coolant flow path for directing coolant to and from the fuel cell stack, but may also be an oxidant flow path” (specification page 3, line 3-6), the reliance of this Office Action on the oxidant air flow path in Meltser et al.’s fuel cell as reading on the instant coolant flow path is not precluded by the scope of the present claims, since the claims do not positively recite an oxidant gas so as to require Meltser’s oxidant air to read on such claimed oxidant gas.

Claim 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meltser et al. in view of Fletcher et al. as applied to claims 1, 4-8, 13, 19-23 above, and further in view of Boehm et al. (U.S. Pat. 5,763,113)

The teachings of Meltser et al. and Fletcher et al. are discussed above. Additionally, Meltser et al. teaches that the cathode gas pressure, i.e. coolant air pressure (discussed *supra*) may be adjustably increased in response to a fuel regulating condition. (col. 8 line 31-34) Based on this teaching, it appears to the examiner that Meltser et al. implicitly require a means for directing and adjusting the fluid flow.

Meltser et al. does not explicitly teach a fan for directing of the coolant air. However, Boehm et al. teaches a “compressor, fan, a pump, or a blower” for control of an identical stream of fluid. (col. 4 line 52-55) Thus, the skilled artisan would find obvious to employ a fan in Meltser et al.’s invention for reasons such as employing a means for precise control of the air fluid stream. (col. 7 line 13-58)

Allowable Subject Matter

Claims 2, 3, 14-18, and 24-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record and to the examiner’s knowledge do not teach or render obvious at least to the skilled artisan the instant invention regarding the fuel regulating system being located in the coolant flow path at a location downstream of the stack.

Art Unit: 1745

In Meltser et al., the fuel and oxidant air streams are regulated separately, and thus, to the extent that the oxidant air stream in Meltser et al. is presently relied upon to read on the instant coolant stream for the reasons set forth in this Office Action, the fuel regulating system would not be obvious to be positioned in the same stream as the oxidant stream at a location downstream of the stack.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. 3,061,658 to Blackmer teaches air as both the oxidant and fuel cell cooling stream.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Julian A. Mercado



Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700